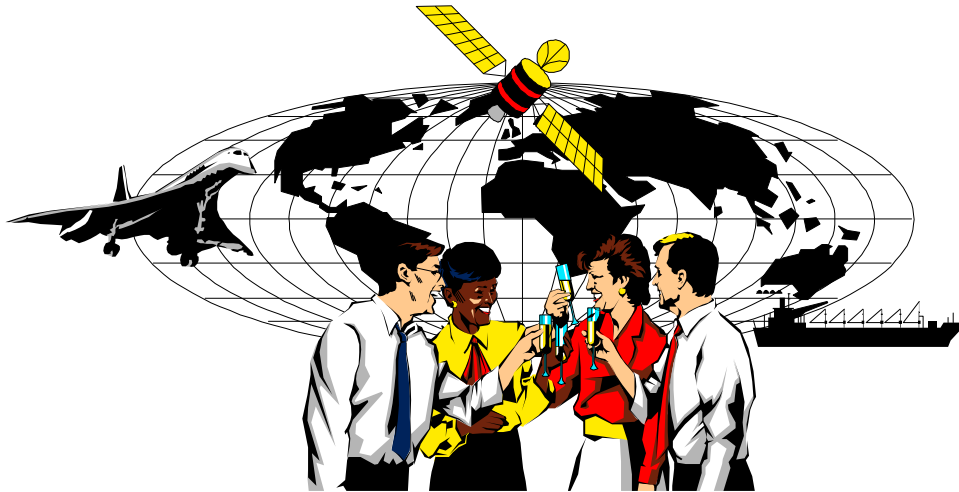


## Pushing the Envelope

U.S. Economic Competitiveness	Worldwide Demand for Aero Products/Services	Threats to Global Security and/or Quality of Life	Global Trend in Govt. Participation in Society
Strong	High Growth	Low	Low



### Summary

The malaise of the late twentieth and early twenty-first century seems like an unpleasant but distant memory. It is 2015 and the U.S., Western Europe, and Japan have reasserted their economic dominance over a world in which free trade, open markets, and democratic government (broadly speaking) reign supreme. A rising global economic tide is gathering many, if not all, ships, even former “basket cases” in the developing world and the former Soviet Union. The World Trade Organization (WTO) and other multilateral organizations keep markets open and succeed in maintaining favorable conditions for cross-border commerce and finance. The information revolution is in a new, dynamic phase and corporations that have learned to leverage this power invariably lead their respective industries. Society is highly mobile, within the bounds of socioeconomic class and national origins. Highly skilled professionals enjoy extraordinary geographic mobility.

The world is thankfully free of large-scale military conflicts. International rivalries tend to be played out in boardrooms and labs, not military battlefields. Competition is intense, with generally low entry barriers and ample venture capital available for promising new ventures. Consumers possess unprecedented opportunities for financial growth, but are time-impooverished and weary in this highly competitive, pressure-cooker world.

The pessimists had it wrong. Those dreary, end-of-the-millennium predictions of the U.S.'s (and Europe's) demise *were* greatly exaggerated. The West was neither dead nor dying. It *was* troubled, economically, politically and socially. But, as events eventually proved, these problems were not intractable; we would overcome them and rebound with a fury. In fact, notwithstanding our huge debt, aging infrastructure, and slumping wages, the U.S. and Western Europe were rebuilding themselves in a way that would ensure economic growth, income recovery, and technological superiority far into the twenty-first century.

But I am getting ahead of myself. In 2000, it was easy to overlook our underlying competitive strengths. The U.S., as well as Western Europe and Japan, had not yet come to grips with the big problems confronting society, particularly those related to debt, long-term funding of entitlement programs, and unemployment. Existing programs were expensive, rife with inefficiencies, and fiscally insupportable. Political systems were mired in what we call "gridlock" with politicians pursuing votes via painless "solutions" (like restricting immigration, raising minimum wages, etc.) that were at best irrelevant, and often counterproductive. Markets were edgy. Wall Street looked no further than the next quarter's earnings, knowing too well that the status quo was unsustainable.

The twentieth century ended on a troubled international note. Concern centered mostly on Asia. Japan experienced an acute financial crisis and near total economic meltdown that would require several years of debt write-offs and bank restructurings to correct. Substantial growth pains afflicted China. The nation was forced to come to grips with the realities of a globally integrated marketplace in which its participation was desired, but not required. Moreover, its rapid economic growth and modernization increased the flow of knowledge throughout society, fueling discontent especially in urban areas over limits to freedom and political action. Authorities chose stability over democracy. Consequently, China moved toward a form of authoritarian capitalism, which combined highly centralized government control over an increasingly decentralized and private economy.

Meanwhile, as the new century was launched, the Emerging Markets were doing generally well. Korea was, in effect, a developed market and within a few years would be admitted into the Organization of Economic Cooperation and Development. India, Brazil, and Indonesia were among the fastest-growing, most dynamic economies anywhere, with rapidly expanding middle classes and affluent populations. Not all were doing equally well, however. Again, China was an inconsistent performer and investors feared that it could suffer political turmoil and a major economic setback. The Middle East was still politically unstable, leaving global energy markets constantly on edge.

Japan's financial market meltdown in 2001 was a crystallizing event — a rallying cry for visionaries who had long argued for fundamental reform. Had the Group of Ten (G-10) central bankers not offered immediate and effective support, Japan's economy would have plunged into a long, deep recession or depression — probably taking the rest of the major markets down with it. But coordinated G-10 action in the form of instant liquidity and commitments of long-term credits staved off a disaster. All was not well, however. Even as Japan's situation began to stabilize, global currency and equity markets were rocked by near-panic buying and selling. More extensive

G-10 central bank cooperation ensued with the objective of achieving coordinated stabilization of key currencies. To make this work, all the major countries had to agree to some fairly aggressive fiscal targets.

By 2002, the plan was in place and most of the G-10 stuck to their commitments. Politicians in effect told their respective constituencies, “Look, do this, or we’ll end up like Japan, or worse.” Most went along, however grudgingly. Constituents deeply feared what would happen if strong medicine were *not* swallowed. And to a point they were willing to follow the politicians.

The results were startling and far more positive than anyone could have imagined, especially for the U.S.. The Chief Executive and Congress hammered out a far-reaching restructuring of government spending programs, including entitlements like Social Security. The idea was to seize this window of opportunity while it was still possible and restructure the entire business of government in the most politically neutral, socially responsible way possible.

The process was anything but silky smooth. Medicare reform was predictably a political minefield. But in general most everyone perceived the process as fair. Everyone had to give; few gained outright. There were very few loopholes in which the wealthy could take shelter. Consumer advocates kept the lobbyists at bay and the politicians reasonably well behaved. Privatization attenuated economic dislocation, as it provided instant revenue and therefore meant lighter spending cuts. Moreover privatization proceeds covered the investment needed in critical infrastructure, including satellite communications and fiber-optic backbone. These were pitched as exceptional activities, actually, designed to “jump start” markets before fully liberalizing them via privatization.

A mix of market and fiscal incentives helped the public swallow the harsh reform medicine. (In truth, subtle anti-rich appeals helped a lot, too, for the wealthy had the most to lose from the proposals being debated). The tax structure rewarded savings and penalized frivolous consumption. Tax credits were granted for eldercare at home. Various user fees were reviewed and, if necessary, changed to ensure that fees for government goods and services reflected true costs to the public. Conservatives’ dream of school coupons succeeded in not only providing choice but also quality education for middle income and (most) children from disadvantaged backgrounds. In major U.S. cities, much public education was effectively outsourced with the help of Catholic and other religious schools.

In retrospect, the sum effect of these major policy shifts would have been limited had U.S. industry not been primed to exploit the improved business environment. In fact, the much maligned “reengineering” and “restructuring” trends of the 1990s proved to be the boot camp of the emerging global business environment. By the late part of the decade, productivity gains were appearing in spades, not only because work forces were slashed to the bone, but because companies were finally growing skilled in applying information technology to all phases of the value chain, from design to distribution. Each wave of new workers was more and more inclined to embrace and innovate information solutions.

Naturally, the Internet was an extraordinary enabler of this “takeoff.” Its impact by 1998 was clear even without the rather significant broadband investment that took place in the U.S. and then later in Germany, England, and France after 2000. By 2005, nearly every U.S. household and commercial center was fiber optically connected. The same was true of Europe (by 2010). In both instances, coordinated government-industry investment engendered relatively efficient and harmonious development, with ample commercial space for private entrepreneurial activity and, of course, profits.

These broadband development projects were exceptional in the sense that they were *not* indicative of a more general move to industrial policies in the U.S. or anywhere. Even socially liberal politicians did not advocate a return to generous welfare policies or state capitalism. Yet, at the same time, there was broad recognition that without the government setting the rules and directing the information infrastructure that either the big, capital intensive work would never get done or it would be badly done, in staccato, and probably chaotic fashion.

By 2005, the market-based restructuring of the U.S. economy was nearly complete. Japan was deep into its own post-crisis restructuring program and the major European countries had their own programs under way. The success of the international organizations during the post-Japan currency scare greatly increased the stock of the WTO. In fact, the WTO played a critical role when the major trading nations could easily have turned protectionist. The WTO not only staved off protectionism, it also accelerated market liberalization as the major trading nations got firmly on their feet.

IT and telecom innovation and expansion accelerated after 2005, as bountiful venture capital fed countless start-up companies offering new products and services for constantly evolving and changing technologies. Businesses ever hungry for efficiency enhancements kept demand high; so did households seeking the latest and greatest interactive educational and entertainment software that broadband communications could provide. With nearly all U.S. households wired by 2010, two in five white- or pink-collar workers now work from home full time; many more do so part-time.

High levels of global trade drove the development of globally harmonized product standards. Trade itself was global and multilateral in focus. Regional trade groups were not really trade blocs at all; they were more like halfway houses to global trade for newly reforming countries. By 2010, only a handful of significant trading nations had significant tariff and nontariff barriers. Offsets were now second generation — for example, Vietnam requiring them of Chinese companies wanting to sell aviation equipment locally. China pared back its own offset requirements; with its booming economy, China no longer needed them.

Free-trade conditions and the Internet facilitated technology transfer to the new manufacturing and knowledge-based economic zones. Workers on multiple continents were now able to work closely on common (design, engineering, for example) projects. Language and time zone differences were trivial complications to these cross-national, cross-cultural collaborative efforts. U.S. and European-based companies discovered that creating cross-national development teams

not only was attractive from a cost standpoint but also ensured high levels of local intellectual content — so critical for a truly global marketplace.

The WTO evolved into an increasingly important international organization, respected by mature and developing nations alike for its fairness and efficient bureaucracy. The IMF became more involved with solvency problems of very poor countries, while the World Bank actively supported free-market infrastructure projects via investment credits and small, short-term equity positions in start-up operations. Private investment continued to be the driving force of infrastructure, however, among other things thanks to highly dynamic venture capital markets and ever-sophisticated risk management tools.

The other major surviving international organization was the UN, whose traditional activities were pruned but continued nonetheless to supply a structure for international peacekeeping and humanitarian relief activities. The U.S. and Europe contributed high-tech weaponry to these police activities. Across the world, the U.S. military presence was significantly downsized and limited primarily to a residual presence in Southeast Asia and the Middle East, which remained subject to low-level instability. Globally, however, it was a time of low weaponry demand.

Free trade and globalization had profound impacts on highly skilled human capital, which could move comparatively easy across borders as major trading nations embraced liberal immigration codes if they enhanced national competitive advantage. Scientists from developing countries trained in the U.S. faced difficult choices when their visas expired: Stay and live reasonably comfortably in the U.S. or go home and make perhaps a small fortune.

The battlefield for power and influence in the world was no longer military but economic in nature. Only small, economically insignificant nations worked out their differences by taking to arms. For all other nations, power resided in the sum of their competitive economic advantages vis-à-vis their trading partners. This was not exactly just “good sport”; competition was typically cutthroat, in the extreme bordering on unethical and even unlawful. For the most part, the major economic powers maintained high intellectual property protection but below them there was widespread piracy and ripping off. The economic cost to the inventing nations was mitigated by the sheer speed of product innovation and the fleetingness of product life cycles.

Nationalism itself was undermined in the global, information-driven economy through a combination of national-to-local “downloading” of funding and program responsibility, and because of the radical decentralization of institutions brought about by the Internet and advanced communications technologies. As goods, services, capital, and in many cases people flowed fluidly across national borders, subnational and cross-national economic zones evolved into the most important sources of economic growth. These New Economic Geographies (NEGs) lacked a formal, juridical identity, but they were real and increasingly important poles of new investment, technological innovation, and job creation. Here in North America, Silicon Valley was a high-tech precursor of the NEG trend. By 2010, there would be NEGs such as the San Diego-Tijuana manufacturing belt, the South Florida-Caribbean commercial area, and the Southeastern Brazil industrial (incorporating Northeastern Argentina) among dozens of others throughout the world. In the developing world, an important demographic result was the redirection of rural emigrants

away from old, heavily congested urban areas, toward these booming NEG's. These NEG's required massive amounts of both hard (roads, bridges, rails, airports, power, water, etc.) and soft (housing, hospitals, schools, etc.) infrastructure investment. More than half of these projects were financed through build-operate-own/transfer-type privatization schemes.

Consumers in the mature markets of the U.S., Europe, and Japan are economically healthy for the most part, but not secure. Paradoxically, there is little economic security in this strong, dynamic economic environment. Affluence is widespread but requires enormous time commitment to work and constant skill upgrading. Competition in the workplace is intense and unrelenting. Even in Europe, two-week vacations have become extremely rare; there is money but a paucity of time.

Adding to time poverty, middle- and upper-class mature market consumers (which now count Taiwan, Singapore and Korea among their ranks) manage their own pension, insurance, and benefit programs. The plethora of international investment opportunities has made this much like a potentially lucrative sport — a very addicting one at that. In the absence of government or pension programs, savings rates are high as consumers realize they themselves must provide their own next retirement funding, with bare-bones government help.

Mature market consumers (and to some extent professional/affluent classes in Emerging Markets) are environmentally aware, with strong quality-of-life feelings. Life is demanding, time is short, and few will tolerate having their precious little leisure time ruined by dirty air, polluted lakes, and noisy skies. At the international level, the United Nations Organization for Protecting Environmental Resources (UNOPER) manages a voluntary program in which member nations buy, sell, and barter CO<sub>2</sub> "pollution rights." Pollution "credits" are allocated on the basis of industrial development and per capita income. It has the effect of discouraging highly polluting industries from producing in the developed world.

Within mature market countries, market incentives take the form of privatized roadways and bridges, as well as "smart highways" in which automobile operators are charged differential rates for use of highways and bridges. This turns out to be a lucrative new business opportunity. A wide range of other market-based solutions are effectively applied as well. Meanwhile, the scope of the Environmental Resources Management Agency (formerly the Environmental Protection Agency) is radically reduced and different. ERMA now polices a much narrower range of environmental issues — groundwater pollution, for example, and others not handled by the market.

The environmentalism is not ideological; it is personal (some say selfish) and practical in nature. Likewise, mature market consumers are concerned about infectious diseases, which the World Health Organization (WHO) data prove have been on the sharp upswing as many of the more remote developing world "hot zones" have been brought into contact (via commerce, travel, missionary and scientific work) with the more developed population areas. WHO has expanded surveillance of Ebola-type outbreaks in response to several major crises in Africa, South Asia, and even Europe.



Natural and man-made health threats encourage affluent consumers to live far from the sources of these problems. Communication technology allows many to live in safe, environmentally clean planned communities where urban and suburban problems do not have to be faced.

Meanwhile, in the Emerging Markets, rapid economic growth and heightened consumption (gasoline, petroleum products, meat, etc.) have rendered natural resources (especially air and water) extremely vulnerable to contamination or depletion. With limited success, some Emerging Market elites and intellectuals pressure their respective governments to join the global Green movement by embracing high (if not First World) standards of environmental stewardship.

Rapid economic expansion, political reform, and liberal global trade combine to accelerate the growth of Emerging Market middle and affluent classes. Consumption potential is enhanced by the deepening of financial markets and the availability of consumer credit, courtesy of new financial market players such as Citicorp, GE Capital, and Household Finance. The ranks of first-time car buyers expand tremendously. Emerging Market consumers show no loss of appetite for all kinds of consumer goods. And increasingly, especially in Asia, the new middle classes are discovering the wonders of Europe and the Americas. Hundreds of local travel companies now organize tours of London, Paris, Rome, and New York, among other prime destinations.